

ABSTRACT

A main object is to provide a crystal of 6-fluoro-1-methyl-7-[4-(5-methyl-2-oxo-1,3-dioxolen-4-yl)-methyl-1-piperazinyl]-4-oxo-4H-[1,3]thiazeto[3,2-a]quinoline-3-carboxylic acid acetonitrile solvate (Compound B) which is an intermediate for producing preferentially the type III crystal of 6-fluoro-1-methyl-7-[4-(5-methyl-2-oxo-1,3-dioxolen-4-yl)methyl-1-piperazinyl]-4-oxo-4H-[1,3]-thiazeto[3,2-a]quinoline-3-carboxylic acid (Compound A). A crystal of Compound B can be preferentially precipitated by controlling the supersaturation concentration in crystalization using acetonitrile as a solvent. Subsequently, the type III crystal of Compound A can be produced by performing desolvation of the crystal.